Work Plan
Soil and Groundwater Sampling
Henkel Surface Technologies Facility
Morenci, Michigan
MID 058 723 867

Prepared for
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Project #1004-05

July 18, 2002

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July 18, 2002

Mr. Brian Freeman
RCRA Enforcement and Compliance Assurance Branch
United States Environmental Protection Agency, Region 5
77 West Jackson Boulevard (DE 9J)
Chicago, Illinois 60604-3590

SUBJECT: Work Plan to Address USEPA Concerns
Former Morenci Facility
Morenci, Michigan
Project #1004-05

Dear Mr. Freeman:

On behalf of Henkel Surface Technologies (HST), enclosed is the Work Plan to conduct certain sampling and testing activities at the HST property located in Morenci, Michigan (the Site). This Work Plan was prepared in response to the June 26, 2002, conference call between representatives of the United States Environmental Protection Agency (USEPA) Region 5 and HST.

During that conference call, it was agreed that HST would conduct three investigative tasks to evaluate five outstanding concerns of the USEPA at the Site. These tasks include (1) installation of piezometers to evaluate groundwater flow directions and the hydraulic boundary conditions of Bean Creek, (2) sampling the four existing monitoring wells for volatile organic chemicals (VOCs), and (3) sampling soils along and outside of the west fence line of the Site. Each of these tasks is further discussed in the attached work plan.

This information would be used to establish current Site conditions and be used by HST and the USEPA during discussions of the Administrative Order (AO) that is pending regarding closure of the Site pursuant to the Resource Conservation and Recovery Act (RCRA).

If you have any questions regarding this information, please contact me at (248) 932-0228.

Sincerely,

THE DRAGUN CORPORATION

Jeffrey A. Bolin, M.S., CHMM
Environmental Scientist

Allan Clifford Lawton, M.Sc.
Geologist

Attachment

Cc: Andre Daugavietis, Esq., USEPA (w/partial enclosure including text and figures)
Mr. George Hamper, USEPA (w/partial enclosure including text and figures)
Jack Garavanta, HST (w/enclosures)
Kenneth C. Gold, Esq., HMS&C (w/partial enclosure including text and figures)
Glenn Young, Esq., Henkel Corporation (w/partial enclosure including text and figures)

JAB/ACL/lrs

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INTRODUCTION

At the request of Mr. Jack Garavanta of Henkel Surface Technologies (HST), The Dragun Corporation prepared this Work Plan to conduct certain sampling and testing activities at the HST facility located in Morenci, Michigan (the "Site," see Figure 1). This Work Plan was prepared in response to the June 26, 2002, conference call between representatives of the United States Environmental Protection Agency (USEPA) Region 5 and HST.

During that conference call, it was agreed that HST would conduct three investigative tasks to evaluate five outstanding concerns of the USEPA at the Site. These tasks include (1) installation of piezometers to evaluate groundwater flow directions and the hydraulic boundary conditions of Bean Creek, (2) sampling the four existing monitoring wells for volatile organic chemicals (VOCs), and (3) sampling soils along and outside of the west fence line of the Site. Each of these tasks is further discussed in the attached Work Plan.

This Work Plan presents the locations to be sampled and the proposed sampling and laboratory methodologies that will be utilized to assess these issues.

SCOPE OF WORK

The proposed scope of work will require the completion of the following tasks:

Task 1: Evaluation Of Groundwater Flow At Bean Creek

The main purpose of this task is to determine whether groundwater discharges from the Site into Bean Creek, that is, the groundwater does not underflow the creek. This task will include three activities, which are discussed below.

First, The Dragun Corporation will advance a soil boring adjacent to monitoring well MW-3 through the uppermost aquifer and three feet into the underlying aquitard. The purpose of this soil boring is to confirm the thickness of the uppermost aquifer adjacent to Bean Creek. Based on the depth of MW-3 and on soil boring data from nearby sites, it is expected that the uppermost aquifer is less than 25 feet thick.

Second, two piezometers; one screened from 12 to 13 feet below ground level (fbgl) and one screened from 22 to 32 fbgl will be installed in soil borings adjacent to MW-3. These piezometers will be used to evaluate the vertical hydraulic gradient. The top-of-casing elevations will be surveyed and groundwater elevations in the piezometers will be determined. Based on

regional groundwater flow analysis, an upward vertical hydraulic gradient indicating groundwater discharge is expected.

Third, during a base-flow (low-flow) period, short-screen drive point piezometers will be driven on the east and west banks of Bean Creek and in the center of Bean Creek. These drive-point piezometers will be driven to the base of the uppermost aquifer in line with the groundwater flow direction from MW-3. Based on nearby soil borings, the aquifer should extend only four to five feet below the streambed. The risers should extend three to four feet above the groundwater so that they can be used during high-flow periods. The riser for the central piezometer will also be used to support a stream staff gauge. The top-of-casing elevations will be surveyed and groundwater elevations in the piezometers and the surface water stage (level) will be determined. The Dragun Corporation will compare these measurements. If the two bank piezometers have higher heads than the central piezometer and creek, the groundwater from the Site has to discharge to the creek.

Task 2: Collection and Laboratory Testing of Groundwater Samples

To evaluate the groundwater quality at the HST Site, The Dragun Corporation will sample groundwater from the four existing monitoring wells (see Figure 2). The sampling will be conducted in a manner consistent with previous sampling events. Groundwater sampling is further discussed in the following text.

Monitoring Well Sampling. Groundwater samples will be collected from the four monitoring wells at the Site. The screen lengths for the four monitoring wells range in length from 10.6 to 23.5 feet. An inflatable packer will be installed in each of the wells to limit the well screen exposed to the groundwater to five feet in length. The packer will be positioned in each of the monitoring wells with a stainless-steel wire, such that the upper five feet of the well screen is exposed. The exposed components of the packer are composed of Buna-N and stainless steel. The packer will be inflated using an air pump.

To ensure that representative groundwater samples are collected, temperature, conductivity, Eh, and pH measurements will be collected following the removal of each well volume. A groundwater sample will be collected following stabilization of field chemistry and removal of at least three well volumes. Field data sheets detailing field chemistry measurements, preservation methods, and sampling observations will be prepared for each well sampled. Additionally, site observations will be recorded in a Site dedicated field book. Additional groundwater sampling procedures are presented in the attached Standard Operating Procedure (SOP, see Appendix A).

Each monitoring well will be sampled using a positive displacement pump dedicated to each well or with a disposable, high-density polyethylene (HDPE) bailer and polypropylene rope. Groundwater samples will be collected in Series 200, ICHEM laboratory containers (or equivalent) using standard USEPA sampling protocols, chain-of-custody documentation, and

sample shipment procedures. Chain-of-custody procedures are presented in the attached SOP (See Appendix B).

Groundwater samples will be submitted to KAR Laboratories, Inc. (KAR) of Kalamazoo, Michigan (laboratory procedures are outlined in the Laboratory QAPP, see Appendix C), and tested for the presence of VOCs utilizing USEPA method 8260. One duplicate groundwater sample will be collected from one monitoring well and tested for the presence of VOCs utilizing USEPA method 8260. One trip blank will be prepared and tested for the presence of VOCs utilizing USEPA method 8260.

Prior to sampling each well, the sampling and field chemistry equipment will be decontaminated with a solution of phosphate-free detergent and distilled water, followed by a distilled water rinse. Additional decontamination procedures are presented in the attached SOP (see Appendix D).

Decontamination water and purge water will be placed on the ground surface adjacent to the soil boring. Additionally, field chemistry equipment will be calibrated according to the manufactures' procedures. Calibration procedures for the field chemistry equipment are presented in the attached SOP (see Appendix E)

Task 3: Collection and Laboratory Testing of Soil Samples

Based on historic information provided by the Michigan Department of Environmental Quality (MDEQ) and HST, the USEPA has expressed concerns relating to potential soil impact in the western portion of the Site and between the western property fence line and Bean Creek. Specifically, the USEPA was concerned with the areas within and adjacent to former waste storage areas numbered 2, 6, and 7.

The Dragun Corporation proposes to install 16 soil borings with a stainless-steel hand auger to depths of approximately one fbgl (refer to Figure 2). A geologist from The Dragun Corporation will log the soil borings. In addition, soil samples will be field-screened with a photoionization detector (PID) to determine the presence of organic vapors.

Soil samples will be collected in Series 200, ICHEM laboratory containers (or equivalent) using standard USEPA sampling protocols, chain-of-custody documentation, and sample shipment procedures. Chain-of-custody procedures are presented in the attached SOP (See Appendix B). Soil samples collected for VOC testing will be collected using USEPA Method 5035 (methanol preservation) techniques.

The USEPA has requested sampling for chemicals included in the RCRA Appendix IX list; however, the USEPA noted that all of the chemicals did not have to be tested for, if based on knowledge of the site operations precluded certain chemicals (e.g., pesticides and herbicides). Based on information provided by HST, operations at this Property consisted of the manufacture

of acid and alkaline cleaners and phosphate compounds for clients to use in the preparation of metal surfaces prior to painting. Major raw materials used in the processes include caustic soda, nitric acid, sulfuric acid, phosphoric acid, hydrofluoric acid, and zinc acid phosphate. To a lesser extent, small quantities of lubricants were utilized. In addition, as indicated from previous testing at the Property, certain chlorinated VOCs have been detected in groundwater and copper; and chromium, zinc, and lead have been detected in soil.

Accordingly, based on information provided by HST and historic soil and groundwater test results, soil samples will be tested for the presence of VOCs utilizing USEPA Method 8260, polychlorinated biphenyls (PCBs) utilizing USEPA Method 8080, polynuclear aromatic chemicals (PNAs) utilizing USEPA Method 8270, and metals including chromium, copper, lead, and zinc. Chromium samples will be tested for total chromium and hexavalent chromium. Soil samples will be submitted to KAR laboratory of Kalamazoo, Michigan. Laboratory procedures are outlined in the Laboratory QAPP (see Appendix C).

Prior to sampling, the sampling equipment will be decontaminated with a solution of phosphate-free detergent and distilled water, followed by a distilled water rinse. Additional decontamination procedures are presented in the attached SOP (see Appendix D). Decontamination water will be placed on the ground surface adjacent to the soil boring.

Task 4: Preparation of a Summary Report

Following completion of these tasks and receipt of laboratory results, The Dragun Corporation will prepare a summary report. This report will present the methods of investigation, the results of the investigation, and an interpretation of the groundwater results with respect to the cleanup criteria pursuant to Part 201 of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451, 1994, as amended.

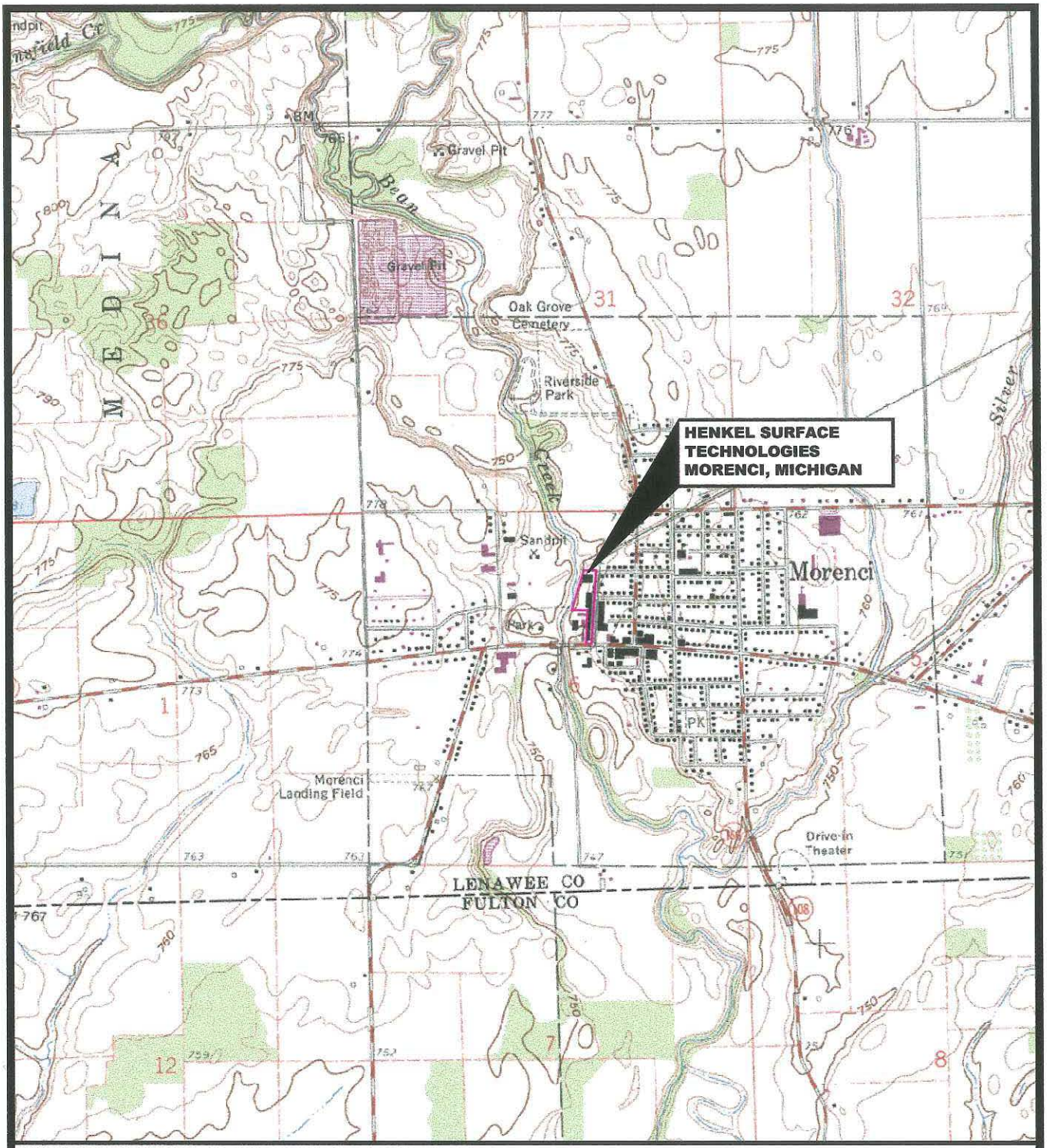
PROJECT SCHEDULE

The Dragun Corporation will schedule work associated with this project upon receipt of written authorization from HST and following written approval of this Work Plan from the USEPA. The Dragun Corporation anticipates fieldwork for the investigation will begin approximately ten working days following authorization. The field activities associated with this scope of work will take approximately one day to complete. Laboratory testing is anticipated to take approximately two to three weeks. The summary report will be completed three to four weeks following receipt of all laboratory data.

PROJECT MANAGEMENT AND ORGANIZATION

Mr. Jeff Bolin will be The Dragun Corporation's Project Manager. As project manager, Mr. Bolin will be responsible for the daily management, coordination of project activities, and report preparation. Mr. Allan Clifford Lawton will be The Dragun Corporation's Field Coordinator (Field Leader) and will provide technical support for field activities. Mr. Ryan Brzak will be The Dragun Corporation's technical field associate. Resumes are presented in Appendix F.

FIGURES



SOURCE: MORENCI, MICHIGAN-OHIO QUADRANGLE (U.S. GEOLOGICAL SURVEY, 1977).

OHIO

QUADRANGLE LOCATION

SCALE

0 2000 FEET

FIGURE 1
SITE LOCATION MAP
HENKEL SURFACE TECHNOLOGIES
MORENCI, MICHIGAN

CAD\USGS MORENCI\1004-05 07.18.02

The Dragun Corporation

PARKING LOT

MW-1

MILL STREET

AREA 3

SB-11 SB-12 SB-13 SB-14

AREA 1

SB-1 SB-2 SB-3 SB-4

SB-15 SB-16 SB-17 SB-18

AREA 4

SB-29 SB-30 SB-31

SB-6 SB-5 SB-7

AREA 5

SB-19 SB-20 SB-21 SB-22 HA-10

AREA 2

HA-11 HA-12

AREA 7

HA-13 HA-14 HA-15 HA-16

SB-8 SB-9 SB-10

HA-9 HA-8 MW-2 HA-7 HA-6 HA-5 HA-4 MW-4 HA-3

(PREVIOUSLY REMEDIATED VIA SOIL REMOVAL, OCT. 1999)

SB-23

AREA 6

SB-24 SB-25 MW-3 HA-2 SB-26 SB-27 HA-1 SB-28

BEAN CREEK

LEGEND

HA-1 PROPOSED SOIL BORING LOCATION

SB-1 PREVIOUS SOIL BORING LOCATION

MW-1 EXISTING MONITORING WELL LOCATION

FORMER WASTE STORAGE AREA

SCALE

0 50 FEET

1004-05\1004-05-01\ [Fig 2] 07.18.02

FIGURE 2
PROPOSED SOIL SAMPLE LOCATION MAP
HENKEL SURFACE TECHNOLOGIES
MORENCI, MICHIGAN

The Dragun Corporation